AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

Claims 1-27. (Cancelled).

Claim 28. (Currently Amended) The method of Claim 29, wherein said cells are of a liver section and growth of said cells is induced by treating, *in vitro*, a resection surface of said liver section with EPO~~, TPO, or GH~~ or a derivative thereof.

Claim 29. (Currently Amended) A method ~~for *in vitro* regeneration of tissue~~ for local initiation, termination and structural guidance of three-dimensional. growth of adult tissue-specific cells on a biological matrix or a supporting structure in an in-vitro tissue regeneration process comprising multiplying and differentiating adult tissue-specific cells *in vitro* on a biological matrix or a supporting structure, in the presence of exogenous erythropoietin (EPO) or a derivative thereof, wherein the growth of said cells is locally initiated, terminated and structurally guided such that said three-dimensional growth of said cells is achieved under the influence of EPO.

Claim 30. (Previously presented) The method as claimed in claim 29, wherein said cells are additionally cultured in the presence of at least one growth factor selected from the group consisting of transforming growth factor beta (TGF beta), prostaglandin, granulocyte-macrophage stimulating factor (GM-CSF), growth hormone releasing hormone (GHRH), thyrotropin-releasing hormone (TRH), gonadotropin-releasing hormone (GnRH), corticotropin-releasing hormone (CRH), dopamine, antidiuretic hormone (ADH), oxytocin, prolactin, adrenocorticotropin, beta-celitropin, lutrotropin and vasopressin.

Claim 31. (Previously presented) The method as claimed in claim 29 or 30, wherein said cells are additionally cultured in the presence of at least one factor selected from the group consisting of a nerve regeneration factor, and a vessel regeneration factor.

Claim 32. (Previously presented) The method as claimed in claim 29 or 30, wherein said method is carried out in the presence of endothelial cells.

Claim 33. (Cancelled).

Claim 34. (Currently Amended) The method as claimed in claim ~~33~~29, wherein the ~~cells are grown in the presence of a~~ biological matrix or a supporting structure~~, which~~ acts as an inductive substrate for said three-dimensional growth.

Claim 35. (Cancelled).

Claim 36. (Currently Amended) The method as claimed in claim 34, wherein the biological matrix or supporting structure is selected from the group consisting of an implant, a stent, a patch, ~~a skin,~~ a hydrogel, a bone substitute material, an allogenic acellularized or non-acellularized tissue, an autologous acellularized or non-acellularized tissue, a xenogenic acellularized or non-acellularized tissue, a synthetic tissue, ~~a feeder~~ and a fabric.

Claim 37. (Previously presented) The method as claimed in claim 34, wherein the biological matrix or supporting structure has been precolonized with cells that are selected from the group consisting of tissue-specific cells, precursor cells, bone marrow cells, peripheral blood, adipose tissue and fibrous tissue.

Claims 38-52. (Cancelled).

Claim 53. (Previously presented) The method as claimed in claim 29, wherein said adult tissue-specific cells are at least one member selected from the group consisting of osteoblasts, fibroblasts, hepatocytes and smooth muscle cells.